UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/592,952	01/19/2007	Sylvia Monsheimer	296033US0PCT	8700

22850 7590 07/07/2011

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
SMITH, JEREMIAH R	
ART UNIT	**PAPER NUMBER**
1744	

NOTIFICATION DATE	DELIVERY MODE
07/07/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/592,952	MONSHEIMER ET AL.	
	Examiner	Art Unit	
	JEREMIAH SMITH	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-43 and 45-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-43 and 45-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/12/11*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action on the merits is in response to communication including remarks filed on 4/25/11.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 28-30 and 36-43 and 45-50 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 28-29 and 35-49 of copending Application No. 11/587758 in view of Beaman (USP 5352405). Although the conflicting claims are not identical, they are not patentably distinct from each other because all of the limitations of the instant application are claimed or obvious over 11/587758.

3. 11/585758 does not claim details of the "controlling the temperature step" required by claim 28 of the instant application; these limitations associated with the controlling of layer temperature are obvious over Beaman as described below in detail.

4. The remainder of the limitations of the instant application are claimed by 11/587758 except the following.

a) That the wavelength of the laser is from 100 to 3000 nm (applicant's claim 28). However, 11/587758 claims a range of 100 to 1000000 nm. The wavelength used would depend on the material and the degree of melting required and would be obvious to optimize. Such optimization could lead to the claimed range.

b) controlling the temperature of the manufacturing chamber (applicant's claim 28) The processing temperature would also directly effect the formed product and thus also be obvious to optimize. Such optimization would include controlling the temperature of the manufacturing chamber.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 28-34, 36-40, 42, 45, 46, 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochsmann (USP 6147138) in view of Podszun (CA 2371181) and further in view of Beaman (USP 5352405).

7. Regarding claim 28, Hochsmann teaches a process for producing a three-dimensional object (see Figure 1), which comprises the steps of. a) providing a layer of a pulverulent substrate (“layer of pourable composite material containing particles", c2:23) c) selective application via inkjet technology (“ink-jet”, column 4 line 5) of an absorber (“a substance which… promotes… solidification”, c3:53-54) in a suspension or of a liquid absorber (“suspension", c3:62) d) application of appropriate substances (the "binder" [column 1 line 57] is an appropriate substance to add) e) selective melting of regions of the powder layer (“melting”, c4:42) by means of radiative heaters (“heat radiation”, claim 9) f) cooling of the molten and non-molten regions to a temperature which allows the moldings to be removed intact (an inevitable step) g) removal of the moldings (an inevitable step of a molding operation).

8. Hochsmann does not provide great detail for his material modifier and is silent regarding the wavelength of his radiation source and does not use a laser as the radiation source of the primary embodiment.

9. In the art of laser sintering, Podszun teaches using radiation absorbing dyes to make an otherwise radiation inert powder sinterable by the application of the laser (Podszun at page 8 lines 15-17). Further, Podszun uses a radiation source, which is a laser, having radiation output form 500 to 1500 nm since this radiation source is effective for use with the absorber (Podszun at page 2 lines 1-6).

10. The simple substitution of one known element [laser radiation source and absorber of Podszun] for another known element [radiation source and material modifier

of Hochsmann] would produce only predictable results; therefore, a prima facie case of obviousness exists as described in MPEP 2141.

11. Hochsmann does not appear to teach the method comprising a step of applying other specific liquids or suspensions with certain properties.

12. Podszun further teaches the method comprising d) application of other specific liquids or suspensions with certain properties (page 4 lines 24-28 describe the application of wax or “slurried ceramic material” as a coating.) for the benefit of producing a hollow ceramic molding.

13. Hochsmann does not appear to teach the method comprising controlling the temperature of a manufacturing chamber by supplying heat to said layer to bring said layer to an elevated temperature or to maintain said layer at an elevated temperature below the melting or sintering temperature of the polymer in said pulverulent substrate.

14. In the analogous art of selective laser sintering, Beaman teaches controlling the temperature of a manufacturing chamber by supplying heat to a layer to bring the layer to a desired temperature (column 6 line 52-column 7 line 38). Beaman further teaches that this temperature control directly affects the quality of the build (column 7 lines 29-32), making the pre-heat temperature a result effective variable.

15. It would have been obvious to a person having ordinary skill in the art at the time of invention to modify the method of Hochsmann by preheating the sintered and unsintered powder as taught by Beaman for the benefit of producing an article having fewer defects. Further, since the heating of Beaman is applied to both heated and unheated powder, the preheating must, or at least should, be performed below the

melting temperature of the powder. Furthermore, since the preheating temperature is a result-effective variable, this temperature would have been obvious to optimize as is described in MPEP 2144.05.

16. Regarding claim 29, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hoschmann further teaches the repetition of steps in order to form the 3-D article (column 2 lines 37-38) It should be pointed out that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results as described in MPEP 2144.04 [In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946)])

17. Regarding claim 30, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann is silent regarding the grain size of the pulverant substrate; however, Podszun further teaches the method wherein the pulverulent substrate used has a median grain size of from 5 to 100 microns. ("2 to 200 microns, preferably 5 to 100 microns", page 3 lines 29-30. Because of the overlap of ranges, a prima facie case of obviousness exists over applicant's claimed range of 10 to 150 microns, (See MPEP 2144.05)) It would have been obvious to a person having ordinary skill in the art at the time of invention to use the suggested grain size of Podszun since this grain size is known to be effective for producing the 3-D articles.

18. Regarding claims 31 and 33, Hochsmann, Podszun and Beaman remain as applied to claim 28. Podsun further teaches the method wherein use is made of a laser

of wavelength from 800 to 1070 nm. ("a Nd-YAG laser with a wavelength of 1064 nm… is used", claim 3; "Nd-YAG lasers", page 8 lines 16-17)

19. Regarding claim 32, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann, Podszun and Beaman teach a method of forming a three-dimensional article comprising the use of a laser and application of an absorber to selective regions of a layer but do not explicitly teach the use of radiation having a wavelength from 1900 to 2100 nm.

20. However, Podszun teaches that wavelengths as large as 10.6 microns and as small as 0.8 microns have been used in laser sintering. Podszun further teaches that certain provide better interaction with particular materials and that smaller wavelengths can be more precisely focused. (page 1 line 26-page 2 line 2) Thus, Podszun discloses a range of wavelengths 0.8 to 10.6 microns which have been used in laser sintering of 3D objects and demonstrates that the particular wavelength is a result effective variable. As described in MPEP 2144.05 a prima facie case of obviousness exists when a claimed range lies within the range disclosed by prior art and it has been found obvious to optimize known result-effective variables. Such optimization in the specified range of 200 to 2500 nm could lead to selection of a wavelength of between 1900 and 2100 nm depending on the material to be patterned.

21. Regarding claim 34, Hochsmann, Podszun and Beaman remain as applied to claim 34. Podsun further teaches the method wherein use is made of a diode laser. ("a semiconductor diode laser… is used", claim 3)

22. Regarding claims 36-38, Hochsmann, Podszun and Beaman remain as applied to claim 28. Podsun further teaches the method wherein the absorber comprises colorants, dyes and/or pigments. ("In principle, all compounds which absorb light [at a preferred wavelength] are suitable IR absorbers. Both IR pigments and IR dyes can be used independently of each other", page 6 lines 20-22, see also claim 9)

23. Regarding claims 39 and 50, Hochsmann, Podszun and Beaman remain as applied to claim 28. Podsun further teaches the method wherein the absorber comprises carbon black, CHP, animal charcoal, graphite, carbon fibers, chalk, or interference pigments. ("Carbon black… is preferably used as an IR pigment", page 6 lines 24-25)

24. Regarding claim 40, Hochsmann, Podszun and Beaman remain as applied to claim 28. Podsun further teaches the method wherein the absorber comprises other components alongside carbon black, CHP, animal charcoal, graphite, carbon fibers, chalk, or interference pigments. (page 8 lines 1-13 describe an absorber which contains components other than the dye, such as water and a solvent. See also, a "carbon black dispersion" comprising various components other than carbon black in page 9 lines 29-31)

25. Regarding claim 42, Hochsmann, Podszun and Beaman remain as applied to claim 36. Podsun further teaches the method wherein the absorber also comprises distilled water, or alcohol, or solvent. (page 8 lines 1-13 describe an absorber which contains components such as water and a solvent.)

26. Regarding claims 45 and 48, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann further teaches the method wherein the pulverant substrate comprises an inorganic filler, such as sand or other ceramic material, (column 3 lines 16-24) encapsulated by a polymeric material ("coating on each particle", column 2 line 44).

27. Regarding claim 46, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann discloses that the powder material may comprise a polymer ("plastics", column 3 line 27), but is silent regarding specific preferred polymers.

28. Podszun further teaches the method wherein the polymer is a homo- or copolymer preferably selected from polyester, polyvinyl chloride, polyacetal, polypropylene, polyethylene, polystyrene, polycarbonate, polybutylene terephthalate, polyethylene terephthalate, polysulfone, polyarylene ether, polyurethane, thermoplastic elastomers, polylactides, polyoxyalkylenes, poly(Nmethylmethacrylimides) (PMMI), polymethyl methacrylate (PMMA), ionomer, polyamide, copolyester, copolyamides, silicone polymers, terpolymers, acrylonitrilebutadiene-styrene copolymers (ABS), and mixtures thereof ("fusable pulyurethanes", page 3 line 23). It would have been obvious to use polyurethane since this material taught by Podszun to be effective for forming the sintered 3-D object.

29. The simple substitution of a known useful polymer for the generic plastic of Hochsmann would produce only the predictable result of a useful 3-D article, therefore, a prima facie case of obviousness exists as described in MPEP 2141.

30. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hochsmann (USP 6147138) in view of Podszun (CA 2371181) and Beaman (USP 5352405) as applied to claim 28 above, and further in view of Kar (US 2001/0002287).

31. Regarding claim 35, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann, Podszun and Beaman teach a method of forming a three-dimensional article comprising the use of a laser and application of an absorber to selective regions of a layer, but have not been shown to teach the method wherein use is made of a laser with unfocused, linear or spread beam.

32. In the analogous art of three-dimensional structure formation, Kar teaches a method wherein a spread laser beam is used for the benefit of more precisely controlling the melting and re-solidification of the layer (see paragraph [0027]).

33. It would have been obvious to a person having ordinary skill in the art at the time of invention to modify the method of Hochsmann by using a spread beam to achieve greater control over the melting and re-solidification process as taught by Kar.

34. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hochsmann (USP 6147138) in view of Podszun (CA 2371181) and Beaman (USP 5352405) as applied to claim 28 above, and further in view of Melisaris (USP 6413697) and further in view of Kawasaki (USP 4317766).

35. Regarding claim 41, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann, Podszun and Beaman teach a method of forming a three-dimensional article comprising the use of a laser and application of an absorber to

selective regions of a layer, but do not appear to teach the method wherein a flame retardant is used.

36. In the analogous art of layered three-dimensional article manufacture, Melisaris teaches a method wherein flame retardants (column 24 line 32) are added to the material which is shaped. Flame retardants may not only be useful in the intended use of the formed article, but may also be beneficial in the prevention of accidents when using high energy lasers during the article formation.

37. It would have been obvious to a person having ordinary skill in the art at the time of invention to modify the method of Hochsmann, Podszun and Beaman by adding flame retardant material to the composition as taught by Melisaris for the benefit of prevention of flameup. Furthermore, such flame retardants could easily be added by incorporating the flame retardants into the absorber.

38. Melisaris does not disclose the make-up of the flame retardant and more specifically, does not appear to teach the method wherein the flame retardant is based on phosphorus or melamine cyanurate.

39. However, melamine cyanurate is a commonly used flame retardant in polymers (for example see abstract of Kawasaki).

40. A person having ordinary skill in the art at the time of invention would understand that simple substitution of the melamine cyanurate based flame retardant of Kawasaki for the generic flame retardant of Melisaris would lead only to the predictable result of a flame retardant absorber; therefore, a prima facie case of obviousness for said substitution exists as described in MPEP 2141.

41. Claims 43, 48, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochsmann (USP 6147138) in view of Podszun (CA 2371181) and Beaman (USP 5352405) as applied to claim 36 above, and further in view of Bredt (US 2001/0050031).

42. Regarding claim 43, Hochsmann, Podszun and Beaman remain as applied to claim 36. Hochsmann, Podszun and Beaman teach a method of forming a three-dimensional article comprising the use of a laser and application of an absorber to selective regions of a layer, but do not appear to teach the method characterized in that the absorber also comprises a surfactant and/or wetting agent and/or biocide and/or moisture retainer.

43. In the analogous art of three-dimensional article formation, Bredt teaches a method wherein wetting agents are added to control the spreading of the printed material. ("Wetting agents are substances that control the surface tension of a liquid. These can be used to modify the spreading of the liquid adhesive on the surfaces of the printhead mechanism.", paragraph [0080])

44. It would have been obvious to a person having ordinary skill in the art at the time of invention to modify the method of Hochsmann, Podszun and Beaman by using a wetting agent as taught by Bredt for the benefit of controlling the spreading of the printable material on the applicator.

45. Regarding claims 48 and 49, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann, Podszun and Beaman teach a method of forming a

three-dimensional article comprising the use of a laser and application of an absorber to selective regions of a layer, but do not appear to teach the method characterized in that use is made of a pulverulent substrate which comprises inorganic fillers comprising glass beads.

46. In analogous art, Bredt teaches a method characterized in that use is made of a pulverulent substrate which comprises inorganic fillers comprising glass beads. ("the filler can be a combination of plaster (0-20%), limestone (calcium carbonate) (40-95%) and glass beads (0-80%). Generally the filler materials are selected on the basis of their ability to bond with the adhesive components, combined with the spreading characteristics of the dry powder.", paragraph [0052])

47. It would have been obvious to a person having ordinary skill in the art at the time of invention to modify the method of Hochsmann, Podszun and Beaman by using an inorganic filler comprised of glass beads for the benefit of manipulating the structural properties of the article formed.

48. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hochsmann (USP 6147138) in view of Podszun (CA 2371181) and Beaman (USP 5352405) as applied to claim 28 above, and further in view of Melisaris2 (USP 6177232).

49. Regarding claim 47, Hochsmann, Podszun and Beaman remain as applied to claim 28. Hochsmann, Podszun and Beaman teach a method of forming a three-dimensional article comprising the use of a laser and application of an absorber to

selective regions of a layer, but do not appear to teach the method characterized in that use is made of a pulverulent substrate which comprises from 0.05 to 5% by weight of a powder-flow aid.

50. Podszun further teaches the method wherein flow enhancing agents can be used to improve the flowability of the particulate substrate material (“Flow enhancing agents therefore usually have to be added to the plastics in order to improve the flowability”, page 4 lines 6-7) but teaches that the uses of flow enhancing agents should be minimized ("[when] flow enhancing agents are added, it has been observed that they cannot be incinerated without leaving a residue", page 4 lines 21-22) but does not give any indication as to the magnitude of a maximum concentration for the flow agents.

51. In the analogous art of three-dimensional article formation, Melisaris2 teaches the use of flow agents at a concentration of “most preferably up to 8%”, column 12 lines 25-31.

52. Because flow aids are a result effective variable as described by Podszun, the amount used would be obvious to optimize as described in MPEP 2144.05. The extremes of the range of optimization would be between 0 % on the low side and up to 8% as taught by Melisaris2 on the high side. Such optimization could lead to values in the claimed range of 0.05 to 5%.

Response to Arguments

53. Applicant's arguments filed 4/25/11 have been fully considered but are not persuasive. Applicant presents the following arguments.

a. In Hochsmann the particles are not melted, whereas in applicant's invention the particles are melted as claimed in step (e). However, Hochsman forms composite particles (see Hochsmann claim 1) and melts the surface portion of the composite particles. Step (e) does not differentiate between partial melting of the particles and complete melting of the particles. Therefore, the melting of the surface portion of the composite particles in Hochsmann reads on the required "selectively melting regions of the layer of the pulverant substrate" of applicant's step (e). It should be pointed out that the "comprises a polymer" limitation of step (a) is inclusive and does not exclude composite particles having an inorganic core and a polymer coating.

b. Podszun, Beaman and the other secondary references do not teach certain aspects of the invention. However, each of these secondary references are only relied on to teach aspects of the invention of which Hochsman is deficient; these secondary references are not relied on to teach the aspects of the invention that are taught by Hochsmann as described in the outstanding rejection.

Conclusion

54. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMIAH SMITH whose telephone number is (571)270-7005. The examiner can normally be reached on Monday to Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YOGENDRA GUPTA/
Supervisory Patent Examiner, Art Unit 1744

JRS